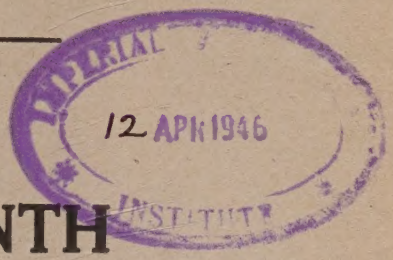
British West Indies Central Sugar Cane Breeding Station, Barbados.



ELEVENTH ANNUAL REPORT

Ending September 30, 1944.

Printed by the Advocate Co., Ltd.
Printers to the Government of Barbados.

I. FOREWORD

ADVISORY COMMITTEE.

The eleventh meeting of the Advisory Committee was held in Barbados from October 25 to 27, 1943, and the report of the Proceedings of the Committee has been circulated. The Committee decided at this meeting as a result of representations which had been received from the sugar interests of British Guiana asking that the Station should undertake the breeding of canes for that Colony that the Geneticist should make an early visit to British Guiana and report on all technical aspects of this matter.

TECHNICAL.

The year under review has again been one of steady progress. The number of crosses made amounted to 108 of which 107 were nobilised crosses and only one was a purely noble cane cross. This number constitutes a record and is over 25% higher than the previous year. Many of the newer and more promising seedlings which are reaching the commercial stage, e.g. B.4098 and B.41227, have the blood of several *Saccharum* species and it is already evident that this inter-mixing of blood is resulting in the production of some excellent seedlings. Early crosses have also been made with the newer breeding material imported in 1941 through the kindness of Dr. E. W. Brandes, Chief of the United States Bureau of Sugar Cane Investigations, with local noble or nobilised material and preliminary studies have been undertaken.

S. J. SAINT,

Director of Agriculture,

Chairman of Advisory Committee.

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British West Indies Central Sugar Cane Breeding Station, Barbados.

ELEVENTH ANNUAL REPORT FOR THE YEAR ENDING THE 30TH OF SEPTEMBER, 1944

II. SUGAR CANE BREEDING—SEEDLING SELECTION AND TRIALS

(i) SUGAR CANE BREEDING—B.46′ SERIES.

Sugar cane breeding was carried out at Lion Castle from October to December, 1943.

All breeding work consisted in crossing and the usual lantern method was employed. The season favoured heavy arrowing, and most of the desired crosses were obtained with little difficulty.

(ii) SEEDLING RAISING, POTTING AND PLANTING IN THE FIELD NURSERY—B.46′ SERIES.

The usual sowing and potting methods were used.

Sowing was done from December to January and potting was completed by February. Potted seedlings were planted in the Field Nursery during the second week in May.

Table I shows under group heads the number of seedlings germinated, potted and planted in the field nursery, while Appendix I gives details for all crosses made.

TABLE I.

Numbers of Seedlings in each Group Germinated, Potted and Planted in the Field Nursery.

GROUP	No. of crosses	No. germinated	No. potted	No. planted in field nursery
Saccharum officinarum	1	430	205	151
S. officinarum x S. spontaneum				
Glagah nobilisations	11	19,008	3,035	2,173
Celebes nobilisations	1	566	340	310
Glagah nobilisations x Celebes nobilisations x local nobilisations ..	2	2,286	500	400
Glagah nobilisations x Celebes nobilisations	5	16,425	2,986	2,336
Glagah nobilisations x local nobilisations	1	62	62	60
S. officinarum x S. robustum 2nd nobilisation	4	14,246	1,104	650
S. officinarum x S. barberi 3rd nobilisation	1	955	504	292

TABLE I.—(*Continued*)

GROUP	No. of crosses	No. germinated	No. potted	No. planted in field nursery
S. officinarum x S. barberi x S. spontaneum				
Glagah nobilisations x Chunnee nobilisations	11	17,845	6,428	4,814
Local nobilisations x Chunnee nobilisations	2	261	245	200
Celebes nobilisations x Chunnee nobilisations	1	3,073	407	200
Glagah nobilisations x local nobilisations x Chunnee nobilisations..	2	2,791	466	400
S. officinarum x S. spontaneum x S. sinense				
Glagah nobilisations x sinense nobilisations	3	1,648	399	350
Celebes nobilisations x Glagah nobilisations x sinense nobilisations	1	47	44	40
S. officinarum x S. spontaneum x S. robustum				
Glagah nobilisations x robustum nobilisations	3	2,467	353	370
S. officinarum x S. barberi x S. robustum				
Chunnee nobilisations x robustum nobilisations	3	7,549	869	590
S. officinarum x Sorghum Sp.				
Noble x Imphee	1	—	—	—
S. officinarum x S. barberi x Sorghum Sp.				
Chunnee nobilisations x Sorghum..	1	63	57	50
S. officinarum x S. spontaneum x Sorghum Sp.				
Glagah nobilisations x Sorghum ..	1	31	30	20
S. officinarum x S. barberi x Erianthus arundinaceous				
Chunnee nobilisations x E. arundinaceous	1	46	46	40
S. officinarum x S. barberi x S. spontaneum x S. sinense				
Chunnee nobilisations x Glagah nobilisations x sinense nobilisations	2	1,608	349	250
Co. 281 and its derivatives				
Chunnee nobilisations x Co. 281 ..	3	4,024	1,776	1,500
Celebes nobilisations x Co. 281 ..	3	10,647	2,469	2,109
Glagah nobilisations x Co. 281 ..	11	12,345	2,818	2,099
Sinense nobilisations x Co. 281 ..	2	320	277	200
Glagah x robustum x Co. 281 ..	1	1,943	308	200
Co. 290 and its derivatives				
Co. 290 x Noble	1	107	93	90
Co. 290 x Sorghum	1	5	—	—
Co. 290 x Glagah	21	21,817	4,823	3,836
Co. 290 x Chunnee	2	1,021	349	300
Co. 290 x Sinense	1	2	—	—
Co. 290 x Co. 281 x Glagah ..	1	344	178	150
Co. 290 x Glagah x Chunnee ..	1	1,016	404	400
Co. 290 x Co. 290	1	717	479	450
S. officinarum x S. barberi x N.C. 100 ..	1	105	95	90
	108	145,820	32,498	25,120

It will be noted that extensive use as parents has been made of the noble cane B.3439, the glagah nobilisations—B.3337, B.3353, B.3354 and P.O.J.2878, the Celebes nobilisations—B.35197 and B.35247, and varieties of mixed derivations such as B.34104, B.35218 and Co.290. These varieties as parents have given seedlings of a very high standard.

(iii) PLANTING THE FIRST YEAR SEEDLING TRIAL—B.45′ SERIES.

This series was bred in 1942, planted in the field nursery in May, 1943, and in the First Year Seedling Trial in October, 1943. This trial will be harvested in 1945. Details for each of the crosses are given in Appendix II. A summary of this Appendix is presented in Table II.

TABLE II.

Numbers of Crosses and Seedlings in each Group Planted in the First Year Seedling Trial, October, 1943—B.45′ Series.

GROUP	No. of crosses	No. of seedlings planted in trial
S. officinarum x Sorghum vulgare		
Noble x sorghum	2	27
S. officinarum x S. barberi x S. spontaneum		
Chunnee x Celebes	1	150
Chunnee x Local	3	750
Chunnee x Glagah	9	1,907
S. officinarum x S. robustum x S. barberi		
Chunnee x robustum	2	321
S. officinarum x S. spontaneum		
Local nobilisation	1	50
Glagah nobilisation	1	728
Glagah x Celebes	1	200
Glagah x Local	1	360
S. officinarum x S. spontaneum x S. sinense		
Glagah x sinense	3	255
S. officinarum x S. spontaneum x S. robustum.		
Glagah x robustum	2	35
S. officinarum x S. spontaneum x S. sinense x S. barberi.		
Chunnee x Glagah x sinense	3	444
S. officinarum x S. barberi x S. spontaneum.		
Glagah x Chunnee x Local	1	39
S. officinarum x S. robustum.		
Robustum nobilisations	2	250
Co. 281 and its derivatives.		
Co. 281 x noble	1	65
Co. 281 x Co. 290	1	63
Co. 281 x Glagah x Chunnee	3	1,386
Co. 281 x Chunnee	1	449
Co. 281 x Sinense	1	50
Co. 281 x Glagah	10	4,517
Co. 290 and its derivatives.		
Co. 290 x glagah	4	674
Co. 290 x chunnee	2	664
Co. 290 x sinense	1	200
	56	13,584

This trial was planted in five randomised blocks, the seedlings from each cross being, as far as possible, evenly distributed between each of the blocks, except where the total population for the cross numbered 80 seedlings or less when all seedlings were planted together in Block I.

(iv) RESULTS OF REAPING THE FIRST YEAR SEEDLING TRIALS—B.44′ SERIES

These were bred in 1941, planted in the field nursery in May, 1942, and from this into the First Year Seedling Trial in October, 1942.

As in the previous year, all of the seedlings were harvested about mid season, to ensure a reasonable germination of the cuttings.

The seedlings were cut, bundled and laid out for inspection as in recent years. Three hundred and forty nine selections were made.

Table III gives details of field and final selections.

TABLE III

First Year Seedlings—B.44′ Series.
Field and Final Selections.

Cross	No. of seedlings reaped	No. selected in field	% Field selection	No. finally selected	% Final selection
B.3013 x B.37256	40	1	3	—	—
„ x P.O.J. 2878 ..	25	4	16	2	8
„ x Kloet	169	23	14	9	5
B.3172 x B.34104	298	22	7	14	5
B.3274 x „	49	6	12	1	2
B.3353 x „	432	37	9	17	4
„ x B.35245	40	—	—	—	—
„ x B.35275	112	5	4	1	1
„ x B.35276	67	4	6	2	3
„ x B.37175	40	—	—	—	—
B.3354 x B.34104	345	32	9	13	4
„ x B.35245	73	4	6	2	3
„ x B.35275	20	—	—	—	—
„ x B.35175	502	38	8	15	3
„ x B.38270	223	12	5	5	2
B.3365 x B.35276	17	—	—	—	—
„ x B.40266	85	3	4	—	—
„ x B.40271	68	5	8	1	1
„ x Co.281	18	2	11	—	—
B.3371 x B.34104	20	—	—	—	—
B.3439 x Ba.6032	136	12	9	2	2
„ x B.417	390	26	7	17	4
„ x B.2935	74	3	4	1	1
„ x B.35187	80	1	1	1	1
„ x 37254	16	1	6	—	—
„ x 38192	82	4	5	2	2
„ x B.39282	89	6	7	1	1
„ x Co.290	578	69	12	38	7
„ x P.O.J.234 ..	280	8	3	2	1
„ x 28 N.G.251 ..	1,051	36	3	13	1
„ x 32 M.Q.579 ..	139	10	7	6	4
„ x Tabongo	49	6	12	4	8
B.34102 x Co.281	24	2	8	1	4
„ x P.O.J.234 ..	47	2	4	1	2
B.34137 x B.417	104	7	7	—	—
B.35206 x B.34104	40	1	3	1	3
„ x B.35253	16	1	6	—	—
„ x B.37256	16	1	6	—	—

TABLE III (*Concluded*).

Cross	No. of seedlings reaped	No. in field selected	% Field selection	No. finally selected	% Final selection
B.35206 x Co.290	14	2	14	—	—
„ x P.O.J.234 ..	15	—	—	—	—
B.35207 x B.34104	147	14	10	5	3
„ x P.O.J.2878 ..	410	32	8	17	4
B.35261 x B.34104	477	28	6	7	2
B.35271 x B.34104	40	1	3	—	—
B.37161 x B.3337	1,246	122	10	65	5
„ x B.35187	20	1	5	1	5
„ x P.O.J.2878 ..	152	17	11	9	6
B.37266 x B.35245	31	1	3	—	—
„ x Co.290	70	6	9	3	4
B.38187 x B.H.10(12) ..	20	2	10	—	—
B.38260 x „ ..	12	—	—	—	—
B.40272 x Co.290	802	88	11	61	8
Co.281 x B.H.10(12) ..	36	1	3	—	—
P.O.J.2725 x B.34104 ..	423	12	3	4	1
P.O.J.2878 x B.H.10(12) ..	62	7	11	5	8
Totals	9,831	728		349	
Average per cent. field and final selections			6.4		2.4

As a result of this trial, it was decided not to repeat any of the following crosses, as the percentage of seedlings selected from their progenies is not sufficiently large.

B.3013 x B.37256	B.3365 x B.40266	B.34137 x B.417
B.3013 x P.O.J.2878	B.3439 x Ba.6032	B.35206 x P.O.J.234
B.3274 x B.34104	B.3439 x B.2935	B.35267 x B.34104
B.3353 x B.35245	B.3439 x B.35187	B.35271 x B.34104
B.3353 x B.35275	B.3439 x B.38192	B.37266 x B.35245
B.3353 x B.37175	B.3439 x B.39282	B.38187 x B.H.10(12)
B.3354 x B.35245	B.3439 x P.O.J.234	Co.281 x B.H.10(12)
B.3354 x B.35275	B.34102 x Co.281	P.O.J.2725 x B.34104
B.3354 x B.38270	B.34102 x P.O.J.234	

(v) PROGRESS WITH SEEDLINGS OF THE B.43′ SERIES

The 414 selections made in 1943 were planted in ten cane hole plots, and in October, 1943, a further selection was made, the total being then reduced to 288. These seedlings were planted in the Central Cane Breeding Station Second Year Seedling Trials at the low rainfall station, Codrington, and at the high rainfall stations, Cliff and Todds.

In selecting, the seedlings were placed in grades according to their appearance at the time of selection. From their performance in the Second Year Seedling Trial, it will then be possible to tell whether or not it is safe to judge the seedlings by their appearance at six months, and what the chances are of good seedlings being eliminated at this stage.

In previous years, one hundred and forty four First Year Seedlings have been selected. These were divided in half and, together with three standard varieties, were planted at high and low rainfall stations. In these trials, each seedling was replicated six times in each experiment, so that for each twelve plots

have been reaped, six at a low rainfall station and six at a high rainfall station. This year, owing to the large number of seedlings—414—it was decided to select a larger number, and to plant them in smaller trials consisting of 18 seedlings and two standard varieties replicated three times. The Second Year Seedling Trials therefore occupy approximately the same area as in previous years, but will contain twice the number of seedlings and each seedling will only be reaped from six plots, three in a low and three in a high rainfall area. This may necessitate an additional trial to sort out the best of the varieties selected from the Second Year Seedling Trial, but this will, of course, depend on the number of selections made.

(vi) PROGRESS WITH SEEDLINGS OF THE B.42′ SERIES

These seedlings were planted in the Second Year Trial in October, 1942, at the low rainfall stations—Codrington and Dodds—and at the high rainfall stations—Todds and Pool. In all, only six seedlings were of sufficient promise to warrant selection. These will be sent to the Plant Quarantine Station for distribution to Contributing Colonies, and will be included in the Select Seedling Trials to be harvested in 1946.

The performances of the selected seedlings and of the standard varieties used in the four experiments are presented in Tables IV and V.

TABLE IV.

Central Sugar Cane Breeding Station Second Year Seedling Trial—B.42 Series. Codrington and Pool. Performances of Standards and Selected Seedlings. (Figures given are the means of six plots.)

Codrington Harvested 3rd, 4th and 15th February, 1943; Pool Harvested 24th—26th April, 1944.

Seedling	Parentage.	Mean No. Canes per Plot (Rotten).		% Arrowing.		Z. H. R. Brix.		Mean Yield Tons Cane per Acre.	
		Codrington	Pool.	Codrington	Pool.	Codrington	Pool.	Codrington	Pool.
B.37161 (a)	Standard.	124(7)	..	5	..	20.3	..	44.45	..
B.37161 (b)	"	111(3)	..	..	..	20.5	..	45.79	..
B.37161 (c)	"	124(3)	..	..	..	19.8	..	47.71	..
B.34104 ..	"	..	139(18)	..	58	..	22.4	..	32.08
B.37161 ..	"	..	98(6)	..	49	..	21.8	..	36.12
B.4098 ..	"	..	127.5	..	85	..	22.8	..	37.93
B.4214 ..	B.3365 x Co.290	111(2)	116(6)	23	70	22.3	23.1	34.94	34.23
B.4226 ..	M.D.47 x Co.281	125(2)	127(4)	41	63	20.8	22.7	36.10	35.26
B.42114 ..	B.35218 x P.O.J.2878	123(1)	117(6)	10	74	20.3	22.4	35.62	36.46

The following differences between mean yields may be considered significant:—

Codrington ± 7.59 tons cane per acre
Pool ± 5.76 tons cane per acre

TABLE V.

Dodds and Todds—Performances of Standards and Selected Seedlings. Dodds Harvested 20th—22nd March, 1944. Toods Harvested 11th—14th April, 1944.

Seedling.	Parentage.	Mean No. Canes per Plot (Rotten).		% Arrowing.		Z. H. R. Brix.		Mean Yield Tons Cane per Acre.	
		Dodds	Todds	Dodds	Todds	Dodds	Todds	Dodds	Todds
B.37161 (a)	Standard.	101(5)	..	81	..	22.2	..	28.12	..
B.37161 (b)	„	102(7)	..	39	..	21.9	..	26.06	..
B.37161 (c)	„	102(5)	..	49	..	22.3	..	25.46	..
B.34104 ..	„	..	134(32)	..	46	..	23.2	..	38.44
B.37161 ..	„	..	125(16)	..	51	..	22.4	..	51.31
B.4098 ..	„	..	118(12)	..	61	..	22.5	..	39.56
B.42231 ..	B.3354 x C.P.28/11	116(8)	127(13)	83	64	23.6	23.8	22.70	44.20
B.42279 ..	B.3365 x Co.290	134(7)	133(12)	59	71	22.1	21.7	27.78	36.46
B.42304 ..	B.3354 x B.H.10(12)	84(4)	134(11)	18	53	24.5	23.9	21.59	41.80

The following differences between mean yields may be considered significant.

Dodds ± 5.53 tons cane per acre
Todds ± 5.73 „ „ „ „

(vii) PROGRESS WITH SEEDLINGS OF THE B.41′ SERIES.

These were reaped as plant canes in the Central Sugar Cane Breeding Station Second Year Seedling Trials in 1943. The selections were multiplied at Codrington in 1943, and in October they were planted in the Selected Seedling Trials to be harvested in 1945. The selections were harvested as first ratoons in the Central Sugar Cane Breeding Station Second Year Seedling Trials at Cliff and Todds in 1944, and their performances together with the performances of the Standard varieties B.35187 and B.35245 are given in Tables VI and VII below.

TABLE VI.

Central Sugar Cane Breeding Station Second Year Seedling Trial— First Ratoons. Harvested at Cliff 9th March, 1944.

(Figures given are the means of six plots)

Seedling	Parentage	Mean No. Canes per plot (Rotten)	% Arrowing	Z.H.R. Brix	Mean Yield Tons per acre
B.35187	Standard	86(1)	5	20.1	30.96
B.35245	Standard	102(3)	—	21.2	43.52
B.4022	B.3439 x B.H.10(12)	145(2)	39	22.2	38.44
B.4102	B.3215 x P.O.J.2878	120(4)	31	22.6	33.80
B.4126	B.3365 x B.2935 ..	85(15)	21	19.4	29.84
B.4137	Co.213 x P.O.J.2878	243(0)	56	21.6	42.83
B.4145	B.3354 x B.H.10(12)	151(6)	42	20.3	46.27
B.4158	B.3439 x B.3461 ..	78(23)	10	21.3	27.69
B.41102	B.3439 x B.3307 ..	82(4)	70	20.8	19.26
B.41103	B.3439 x B.3307 ..	132(3)	80	21.6	27.52
B.41203	B.3439 x B.(30)L7 ..	76(16)	12	22.1	26.49
B.41204	B.3439 x B.(30)L7 ..	152(5)	32	22.3	34.49
B.41211	B.3439 x B.37252 ..	160(6)	9	21.4	51.77
B.41226	B.35207 x P.O.J.2878	192(2)	25	22.2	42.23
B.41227	„ x „	218(3)	11	20.5	65.27
B.41229	„ x „	153(3)	61	23.1	27.95
B.41238	„ x „	182(4)	27	20.9	37.75
B.41255	B.3439 x B.37256 ..	228(4)	88	17.6	41.11

A difference of ± 7.44 tons per acre may be regarded as significant.

TABLE VII.

Central Sugar Cane Breeding Station Second Year Seedling Trial—First Ratoons. Harvested at Todds, 14th April, 1944.

(Figures given are the means of six plots)

Seedling	Parentage	Mean No. Canes per plot (Rotten)	% Arrowing	Z.H.R. Brix	Mean Yield tons cane per acre
B.35187	Standard	77(12)	1	22.6	26.06
B.35245	Standard	66(15)	—	23.2	25.63
B.4110	B.3365 x P.O.J.2878	114 (6)	48	21.9	32.09
B.4111	B.3365 x P.O.J.2878	135 (3)	49	23.7	30.27
B.4146	B.3354 x B.H.10(12)	124(14)	45	23.8	29.76
B.4148	B.3354 x B.H.10(12)	131 (5)	8	22.2	28.72
B.4196	B.3439 x B.3307 ..	116(17)	8	22.8	26.40
B.41104	B.3439 x B.3307 ..	107 (9)	54	23.9	30.10
B.41228	B.35207 x P.O.J.2878	164 (8)	29	22.0	33.63
B.41261	B.3439 x B.37256 ..	221 (5)	44	22.4	37.50

A difference of ± 5.50 tons per acre may be considered significant.

(viii) SELECT SEEDLING AND CO-OPERATIVE VARIETY TRIALS

A. THE SEEDLINGS TESTED.

(1) *Select Seedling Trials*

Plant Canes .... B.3337, B.38155, B.4092, B.40105, B.3439, B.38212, B.4094, B.40116, B.34104, B.3915. B.4096, B.35187, B.39175, B.4098, B.35245, B.39180, B.40100, B.37161, B.39240, B.40102.

1st Ratoons .... B.3439, B.37161, B.39240, B.34104, B.37193, B.4019, B.35187, B.39177, B.4092, B.35245, B.39237, B.4094.

2nd Ratoons .... B.H.10(12), B.3013, B.35245, B.40118, B.726, B.34104, B.38155, B.2935, B.35187, B.38212.

(2) *Co-Operative Variety Trials*

3rd Ratoons .... B.3013, B.35187, B.35245.

B. AN ECOLOGICAL CLASSIFICATION OF THE TRIALS

The classification is similar to that used in recent years, and is as follows:—

(a) Black coral limestone soils, where the average seasonal rainfall is low. On account of low rainfall, ratooning is difficult, and cane tonnages are usually low. Stations in this category were:—

Select Seedling Trials

Plant Canes .... Coverley, Mangrove, Bushy Park, Spring Hall.

(b) Black coral limestone soils of low-intermediate rainfall. On account of better rainfall than Category (a) a certain amount of ratooning is practised. The extent of ratooning is increasing as stronger ratooning varieties become available. The stations in this category were:—

Select Seedling Trials

Plant Canes	....	Staple Grove, Norwood.
1st Ratoons	....	Brighton, Three Houses, Hannays, Lower Estate, Lowthers.

(c) Valley deep black coral limestone soil area, low-intermediate rainfall. This area may suffer periodic water-logging. Soils, especially subsoils, tend to a heavy texture, and root diseases are commonest here. Varieties resistant to the root diseases complex are therefore necessary. A considerable percentage of this area is ratooned. Stations in this category were:—

Select Seedling Trials

Plant Canes	....	Bulkeley.
1st Ratoons	....	Bulkeley.

(d) Red coral limestone area, intermediate to high rainfall. One to four ratoon crops are grown here. The stations in this category were:—

(1) *Select Seedling Trials*

Plant Canes	....	Locust Hall, Clifton Hall, Colleton, Nicholas.
1st Ratoons	....	Kendal.
2nd Ratoons	....	Guinea, Andrews.

(2) *Co-Operative Variety Trials*

3rd Ratoons	....	Horse Hill, Mount Wilton.

(e) Sandy coral limestone soils where the average annual rainfall is low to intermediate. These soils on account of their comparatively light texture are liable to dry out rapidly.

Select Seedling Trials

Plant Canes	....	Alleynedale.
2nd Ratoons	....	Six Mens.

C. RAINFALL DURING THE SEASONS.

TABLE VIII

Month.	1920—21 to 1939—40	1940—41	1941—42	1942—43	1943—44
January ..	3.33	2.32	1.46	2.17	2.83
February ..	1.96	0.44	0.48	1.72	1.08
March	1.58	5.46	1.50	1.07	2.68
April	1.61	0.56	1.55	4.10	2.24
May	1.93	1.11	1.91	1.06	4.31
June	4.41	2.54	3.02	4.23	4.03
July	6.31	5.50	4.72	7.41	3.74
August	6.24	6.50	5.11	4.63	4.78
September ..	7.22	6.17	10.08	5.55	5.82
October ..	7.55	6.07	8.15	6.91	10.75
November ..	9.46	7.18	7.61	9.81	7.19
December ..	4.09	1.89	3.40	4.64	7.95
January ..	3.29	1.46	2.17	2.83	1.28
February ..	1.86	0.48	1.72	1.08	1.23
March	1.73	1.50	1.07	2.68	0.85
Totals ..	62.57	49.18	53.95	59.89	60.76

D. RESULTS OF THE TRIALS

In the Select Seedling Plant Cane Trials, the following data are obtained:—(1) cane tonnage, (2) number of rotten canes per plot, (3) complete cane chemical analysis from plot sample bundles and so, (4) a calculation of the sucrose yield per acre.

N.B.:—Owing to a shortage of trained analytical staff, it was decided to take samples from all blocks as in previous years, but to combine the samples from blocks I and II for analysis, and similarly with blocks III and IV. This means that the sucrose figures are calculated from the mean percentage sucrose in cane figure of two blocks.

In the Select Seedling Ratoon Trials, cane tonnages, number of rotten canes, and hand refractometer brix values are obtained.

In the Co-operative Variety Trials, cane tonnages and hand refractometer readings only are obtained.

The results from the several categories are considered here.

CATEGORY A.

The results are given in Table IX.

TABLE IX

Select Seedling Trials—Plant Canes

Estates and Dates of Harvesting:—
Coverley — 22nd and 23rd February, 1944.
Mangrove — 25th and 26th February, 1944.
Bushy Park — 29th February and 1st March, 1944.
Spring Hall — 7th and 9th March, 1944.

Variety	CANE TONS PER ACRE								PER CENT SUCROSE IN CANE								QUOTIENT OF PURITY							
	Coverley		Mangrove		Bushy Park		Spring Hall		Coverley		Mangrove		Bushy Park		Spring Hall		Coverley		Mangrove		Bushy Park		Spring Hall	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3337 ..	—	—	—	24.56	—	—	—	—	—	—	—	15.4	—	—	—	—	—	—	—	90.3	—	—	—	—
B.3439 ..	19.57	18.22	—	23.42	30.21	—	35.92	28.02	16.0	15.9	—	16.4	16.2	—	16.0	16.6	90.3	89.3	—	87.9	88.7	—	86.7	88.0
B.34104 ..	20.46	18.17	—	23.23	29.59	24.99	29.50	24.80	16.9	16.8	—	16.4	16.4	16.2	17.5	16.8	92.2	92.2	—	89.8	91.2	90.1	90.6	89.2
B.35187 ..	—	18.57	—	—	—	—	—	—	—	16.8	—	—	—	—	—	—	—	92.2	—	—	—	—	—	—
B.37161 ..	20.92	23.09	29.99	28.02	—	31.51	37.86	31.92	15.8	15.5	15.3	16.3	—	14.8	15.3	15.8	91.3	91.0	89.6	90.1	—	88.6	86.8	89.4
B.3915 ..	—	—	—	—	28.77	—	—	—	—	—	—	—	16.0	—	—	—	—	—	—	—	90.2	—	—	—
B.39175 ..	14.71	—	20.47	—	21.62	—	25.02	—	17.1	—	15.9	—	17.0	—	16.4	—	91.6	—	88.7	—	91.4	—	88.6	—
B.39180 ..	—	19.60	—	—	—	—	—	—	—	16.4	—	—	—	—	—	—	—	90.9	—	—	—	—	—	—
B.39240 ..	—	17.05	21.72	—	—	24.63	—	—	—	15.9	15.5	—	—	15.8	—	—	—	89.4	88.3	—	—	89.3	—	—
B.4092 ..	—	—	—	23.66	—	25.95	—	—	—	—	—	15.3	—	15.1	—	—	—	—	—	87.9	—	87.8	—	—
B.4094 ..	21.23	—	24.19	—	29.20	—	—	19.43	15.2	—	15.6	—	15.6	—	—	14.6	88.8	—	87.7	—	88.7	—	—	86.5
B.4096 ..	24.87	21.30	—	—	29.72	30.88	23.33	—	15.5	15.8	—	—	15.6	15.6	15.7	—	89.7	89.8	—	—	88.9	88.5	87.3	—
B.4098 .	20.03	21.57	26.54	23.56	34.00	30.61	34.37	29.53	16.3	16.5	15.9	16.3	17.2	16.5	16.6	15.9	90.1	89.6	86.5	86.6	91.7	88.9	86.0	84.4
B.40100 ..	—	—	21.26	—	—	32.11	—	—	—	—	14.9	—	—	15.2	—	—	—	—	86.4	—	—	87.2	—	—
B.40102 ..	—	—	30.40	—	—	—	—	32.16	—	—	14.1	—	—	—	—	15.0	—	—	83.4	—	—	—	—	84.2
B.40105 ..	—	—	—	29.44	34.01	—	39.51	—	—	—	—	15.4	16.0	—	16.9	—	—	—	—	88.4	90.1	—	88.3	—
B.40116 ..	29.61	—	29.10	—	—	39.94	—	—	16.8	—	16.1	—	—	15.9	—	—	92.5	—	88.7	—	—	90.6	—	—

Variety	SUGAR TONS PER ACRE								NO OF ROTTEN CANES PER PLOT							
	Coverley		Mangrove		Bushy Park		Spring Hall		Coverley		Mangrove		Bushy Park		Spring Hall	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3337 ..	—	—	—	3.78	—	—	—	—	—	—	—	3	—	—	—	—
B.3439 ..	3.13	2.90	—	3.84	4.89	—	5.75	4.65	3	2	—	3	6	—	9	8
B.34104 ..	3.46	3.05	—	3.81	4.85	4.05	5.16	4.17	6	5	—	10	12	13	23	33
B.35187 ..	—	3.16	—	—	—	—	—	—	—	3	—	—	—	—	—	—
B.37161 ..	3.31	3.74	4.59	4.57	—	4.67	5.80	5.04	7	3	21	24	—	16	23	22
B.3915 ..	—	—	—	—	4.61	—	—	—	—	—	—	—	22	—	—	—
B.39175 ..	2.52	—	3.26	—	3.68	—	4.10	—	4	—	33	—	24	—	70	—
B.39180 ..	—	3.11	—	—	—	—	—	—	—	2	—	—	—	—	—	—
B.39240 ..	—	2.71	3.37	—	—	3.89	—	—	—	4	24	—	—	6	—	—
B.4092 ..	—	—	—	3.62	—	3.92	—	—	—	—	—	25	—	85	—	—
B.4094 ..	3.23	—	3.77	—	4.55	—	—	2.84	4	—	11	—	11	—	—	86
B.4096 ..	3.86	3.44	—	—	4.64	4.82	3.67		8	6					140	
B.4098 .	3.27	3.65	4.22	3.84	5.85	5.05	5.71	4.70	4	2	22	12	8	9	19	18
B.40100 ..	—	—	3.17	—	—	4.88	—	—	—	—	6	—	—	5	—	—
B.40102 ..	—	—	4.29	—	—	—	—	4.83	—	—	3	—	—	—	—	7
B.40105 ..	—	—	—	4.53	5.44	—	6.68	—	—	—	—	6	5	—	15	—
B.40116 ..	4.97	—	4.69	—	—	6.35	—	—	6	—	28	—	—	17	—	—

The following differences between mean yields may be considered significant:—

Coverley
(Group I .. ± 0.64 tons sugar, ± 3.91 tons cane per acre
(Group II .. ± 0.56 tons sugar, ± 3.46 tons cane per acre

Mangrove
(Group I .. ± 0.65 tons sugar, ± 4.20 tons cane per acre
(Group II .. ± 0.50 tons sugar, ± 4.19 tons cane per acre

Bushy Park
(Group I .. ± 0.75 tons sugar, ± 4.88 tons cane per acre
(Group II .. ± 0.52 tons sugar, ± 3.29 tons cane per acre

Spring Hall
(Group I .. ± 0.55 tons sugar, ± 3.39 tons cane per acre
(Group II .. ± 0.72 tons sugar, ± 4.66 tons cane per acre

The seedling B.40116 outyielded all other varieties on sugar and cane at the stations at which it was tried with the exception of Mangrove, where it was beaten on cane tonnage by B.40102. The difference was, however, insignificant.

The seedling B.40105 was also outstanding, outyielding all other varieties on sugar with the exception of B.37161 at Mangrove, and B.4098 at Bushy Park. It, however, outyielded all other varieties on cane tonnage at those stations at which it was tried.

The seedling B.4098 was fairly well up to the standard varieties at all stations, and was better than any of the standard varieties at Busy Park

CATEGORY B.

The results are given in Tables X and XI.

TABLE X

Select Seedling Trials—Plant Canes

Estates and Dates of Harvesting :— {Norwood 16th and 17th March, 1944; Staple Grove 28th and 29th March, 1944

Variety	CANES TONS PER ACRE				% SUCROSE IN JUICE				QUOTIENT OF PURITY				SUGAR—TONS PER ACRE				NO. OF ROTTEN CANES/PLOT			
	Norwood		Staple Grove		Norwood		Staple Grove		Norwood		Staple Grove		Norwood		Staple Grove		Norwood		Staple Grove	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3439 ..	21.70	19.86	—	29.24	15.8	16.0	—	16.7	88.0	87.7	—	89.5	3.43	3.18	—	4.89	4	4	—	3
B.34104 ..	—	23.68	32.92	—	—	16.5	17.7	—	—	90.6	92.1	—	—	3.91	5.83	—	—	5	40	—
B.35187 ..	—	—	—	33.72	—	—	—	17.6	—	—	—	95.9	—	—	—	5.94	—	—	—	11
B.37161 ..	29.62	26.98	34.38	34.47	15.0	15.3	16.3	16.3	89.1	88.7	90.3	90.4	4.07	4.13	5.61	5.62	12	16	37	21
B.38155 ..	—	23.43	33.01	—	—	17.2	18.1	—	—	91.3	91.7	—	—	4.03	5.98	—	—	12	21	—
B.38212 ..	—	—	—	28.58	—	—	—	17.0	—	—	—	90.1	—	—	—	4.86	—	—	—	27
B.3915 ..	—	—	—	36.50	—	—	—	16.8	—	—	—	90.1	—	—	—	6.14	—	—	—	27
B.39175 ..	20.68	—	—	—	15.8	—	—	—	89.9	—	—	—	3.27	—	—	—	29	—	—	—
B.39180 ..	—	21.86	—	30.70	—	16.6	—	17.3	—	88.3	—	88.7	—	3.41	—	5.31	—	8	—	9
B.39240 ..	18.26	—	—	—	15.8	—	—	—	89.3	—	—	—	2.89	—	—	—	31	—	—	—
B.4092 ..	—	18.94	32.26	—	—	15.2	16.3	—	—	88.4	90.3	—	—	2.88	5.26	—	—	101	77	—
B.4094 ..	24.92	—	30.29	—	13.9	—	16.5	—	88.8	—	89.4	—	3.46	—	5.00	—	100	—	33	—
B.4096 ..	23.76	—	29.97	—	15.2	—	15.8	—	85.3	—	85.1	—	3.65	—	4.75	—	55	—	70	—
B.4098 ..	33.34	31.64	35.15	38.41	16.7	16.9	16.9	17.3	89.3	89.0	89.3	89.4	5.57	5.35	5.94	6.75	8	4	19	17
B.40100 ..	—	26.10	—	—	—	16.6	—	—	—	88.8	—	—	—	4.07	—	—	—	10	—	—
B.40102 ..	24.04	—	—	24.21	13.5	—	—	12.7	83.0	—	—	75.8	3.25	—	—	3.08	18	—	—	45
B.40105 ..	—	—	36.85	—	—	—	16.4	—	—	—	88.4	—	—	—	6.04	—	—	—	19	—

The following differences between mean yields may be considered significant:—

Norwood {Group I .. ± 1.27 tons sugar per acre. Results for cane are insignificant.
Norwood {Group II .. ± 0.81 tons sugar ± 4.87 tons cane per acre.

Staple Grove {Group I .. Results for both sugar and cane are insignificant at P — 0.05
Staple Grove {Group II .. ± 0.65 tons sugar ± 4.07 tons cane per acre.

TABLE XI

Select Seedling Trials—1st Ratoons.

Estates and Dates of Reaping:—

Brighton	10th March, 1944
Three Houses	24th March, 1944
Hannays	23rd March, 1944
Lower Estate	11th February, 1944
Lowthers	23rd February, 1944

Variety	TONS CANE PER ACRE										Z. H. R. BRIX										NO. OF ROTTEN CANES PER PLOT									
	Brighton		Three Houses		Hannays		Lower Estate		Lowthers		Brighton		Three Houses		Hannays		Lower Estate		Lowthers		Brighton		Three Houses		Hannays		Lower Estate		Lowthers	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.34104 ..	19.61	—	—	—	26.14	—	26.09	—	—	—	25.8	—	—	—	24.7	—	22.2	—	—	—	3	—	—	—	6	—	1	—	—	—
B.35187 ..	—	15.03	—	—	—	14.79	—	—	—	—	—	24.7	—	—	—	25.0	—	—	—	—	—	2	—	—	—	—	—	—	—	—
B.35245 ..	16.01	—	—	—	14.11	—	—	—	—	—	24.1	—	—	—	23.5	—	—	—	—	—	9	—	—	—	9	—	—	—	—	—
B.37161 ..	23.01	22.17	26.88	23.84	32.78	24.85	26.64	27.58	25.84	27.58	23.6	23.3	23.4	23.1	22.9	23.2	21.7	21.6	22.7	21.6	5	1	2	1	2	2	—	2	4	4
B.37193 ..	22.75	—	26.06	—	—	—	—	—	19.10	—	24.3	—	23.0	—	—	—	—	—	23.2	—	1	—	—	—	—	—	—	—	1	—
B.39177 ..	—	20.66	—	17.79	—	20.09	—	24.80	—	27.70	—	24.7	—	23.1	—	25.8	—	22.2	—	22.9	—	1	—	14	—	1	—	1	—	3
B.39237 ..	—	—	—	17.51	—	—	—	18.42	—	—	—	—	—	23.1	—	—	—	23.4	—	—	—	—	—	9	—	—	—	4	—	—
B.39240 ..	—	—	19.82	13.82	—	17.21	—	—	—	22.38	—	—	22.6	20.9	—	24.1	—	—	—	21.5	—	—	9	164	—	2	—	—	—	2
B.4019 ..	—	19.07	—	—	—	—	—	22.45	—	—	—	24.2	—	—	—	—	—	21.8	—	—	—	1	—	—	—	—	—	4	—	—
B.4092 ..	—	—	—	—	—	—	—	—	—	21.98	—	—	—	—	—	—	—	—	—	21.7	—	—	—	—	—	—	—	—	—	8
B.4094 ..	—	—	—	—	—	—	—	25.65	—	—	—	—	—	—	—	—	—	21.7	—	—	—	—	—	—	—	—	—	—	—	—

The following differences between mean yields may be considered significant:—

Brighton	Group I ..	± 5.52 tons cane per acre
	Group II ..	Insignificant
Three Houses	Group I ..	± 3.67 tons cane per acre
	Group II ..	± 5.28 tons cane per acre
Hannays	Group I ..	± 3.64 tons cane per acre
	Group II ..	± 2.45 tons cane per acre
Lowthers	Group I ..	± 3.86 tons cane per acre
	Group II ..	± 3.31 tons cane per acre
Lower Estate	Group I ..	Insignificant
	Group II ..	Insignificant

16a

In the Select Seedling Plant Cane Trials in this Category, the seedling B.4098 was outstanding, exceeding all others on yield of cane and sugar with the single exception of B.40105 at Staple Grove. The differences were, however, not significant.

The only other seedling to exceed the yield given by the standard variety B.37161 was the noble seedling B.3915, and this, like B.40105 was only included in one trial in this category.

The standard variety B.37161 proved to be better than any of the other seedlings tested with the exception of B.39177 at Lowthers. The juice of the seedling B.39177 is better than that of B.37161, but the heavier yield of the latter more than makes up for this in most instances.

The seedling B.37193 also showed promise at Brighton and Three Houses, but the yield at Lowthers was disappointing. The quality of the juice as indicated by the Zeiss Hand Refractometer Brix values was better than that of B.37161.

CATEGORY C.

Results are given in Tables XII and XIII.

TABLE XII.

Select Seedling Trials — Plant Canes

Estate — Bulkeley. Harvested 19th April 1944.

Variety	Cane — Tons per acre		Per cent. Sucrose in Cane		Quotient of Purity		Sugar — Tons per acre		No. of Rotten Canes per plot	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
3439 ..	—	27.79	—	16.3	—	86.5	—	4.53	—	15
34104 ..	28.76	27.58	17.9	18.6	90.3	90.8	5.15	5.13	44	60
37161 ..	32.21	—	16.0	—	88.2	—	5.15	—	19	—
38155 ..	28.74	—	18.0	—	89.5	—	5.17	—	17	—
38212 ..	—	26.67	—	16.9	—	87.9	—	4.51	—	20
39180 ..	—	26.65	—	18.9	—	92.1	—	5.04	—	27
39240 ..	—	28.25	—	16.7	—	89.3	—	4.72	—	41
4092 ..	15.93	—	15.7	—	87.7	—	2.50	—	289	—
4096 ..	17.86	—	15.0	—	83.3	—	2.68	—	156	—
4098 ..	32.10	32.93	17.8	18.1	88.3	88.4	5.72	5.96	7	14
40100 ..	33.07	—	16.2	—	87.2	—	5.36	—	25	—
40102 ..	—	23.50	—	13.9	—	81.0	—	3.27	—	57
40105 ..	—	32.65	—	16.2	—	85.5	—	5.29	—	33
40116 ..	29.52	—	17.3	—	89.8	—	5.11	—	57	—

The following differences between mean yields may be considered significant:—

Group I ± 0.53 tons sugar, ± 3.12 tons cane per acre.
Group II ± 0.55 tons sugar, ± 3.39 tons cane per acre.

TABLE XIII.

Select Seedling Trials — 1st Ratoons.

Estate — Bulkeley. Harvested 19th April, 1944.

Variety.	Tons cane per acre.		Z. H. R. Brix		No. of Rotten Canes Per Plot.	
	Group I.	Group II.	Group I.	Group II.	Group I.	Group II.
B.35187 ..	..	21.60	..	23.8	.	3
B.35245 ..	19.01	..	23.2	..	16	..
B.37161 ..	33.97	33.55	22.1	23.3	3	0
B.37193 ..	34.78	..	23.7	..	0	..
B.39177 ..	..	28.13	..	25.4	..	1

The following differences between mean yields may be considered significant:—

Group I ± 6.84 tons cane per acre.
Group II ± 4.65 tons cane per acre.

In the Select Seedling Trial, Plant Canes at Bulkeley, the seedling B.4098 was outstanding as regards yield of sugar, outyielding the standards and all other varieties. The seedling B.40105 also gave a good performance. The seedling B.40100 gave a good yield of plant cane, but the juice is inclined to be poor. The seedling B.38155 gave a good performance, but was beaten significantly on sugar and cane by the newer seedling B.4098.

In the Select Seedling Trials, 1st Ratoons, the seedling B.37193 gave a higher yield of cane than the standard varieties B.35245 and B.37161. However, this difference was insignificant. The juice of this cane was also better than those of the standard varieties at this station.

CATEGORY D.

Results are given in Tables XIV, XV, XVI and XVII.

TABLE XIV

Select Seedling Trials—Plant Canes

Estates and Dates of Harvesting:—
- Locust Hall — 1st and 4th April, 1944
- Clifton Hall — 21st and 22nd April, 1944
- Colleton — 30th and 31st March, 1944
- Nicholas — 5th and 6th April, 1944

Variety	CANE TONS PER ACRE								PER CENT SUCROSE IN CANE								QUOTIENT OF PURITY							
	Locust Hall		Clifton Hall		Colleton		Nicholas		Locust Hall		Clifton Hall		Colleton		Nicholas		Locust Hall		Clifton Hall		Colleton		Nicholas	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3337 ..	—	33.03	—	—	—	—	—	—	—	14.6	—	—	—	—	—	—	—	85.9	—	—	—	—	—	—
B.3439 ..	30.51	—	—	—	—	—	—	—	17.0	—	—	—	—	—	—	—	88.3	—	—	—	—	—	—	—
B.34104 ..	31.02	31.91	52.54	41.48	34.84	36.63	26.92	25.12	16.5	17.6	16.6	15.6	16.1	16.7	17.1	16.1	88.5	91.0	88.9	88.5	88.6	90.8	89.6	85.9
B.35187 ..	—	36.86	—	35.20	—	38.06	—	25.12	—	17.0	—	15.0	—	13.6	—	17.0	—	91.8	—	89.3	—	86.5	—	90.3
B.35245 ..	29.39	—	29.59	—	36.23	—	27.67	—	16.8	—	16.0	—	16.3	—	17.5	—	90.3	—	90.4	—	90.2	—	90.8	—
B.37161 ..	—	36.37	—	51.69	39.96	45.06	31.98	31.13	—	15.6	—	14.7	15.1	14.6	15.7	15.7	—	89.7	—	88.2	91.3	88.8	89.6	89.7
B.38155 ..	28.31	—	16.61	14.70	—	19.82	24.89	—	17.9	—	15.6	16.0	—	15.4	16.8	—	90.0	—	88.1	88.4	—	84.8	88.8	—
B.38212 ..	—	30.04	—	40.76	39.78	—	—	28.50	—	16.7	—	16.1	15.9	—	—	15.6	—	90.2	—	88.5	83.4	—	—	88.1
B.3915 ..	21.48	—	—	—	—	—	—	26.22	15.7	—	—	—	—	—	—	15.6	87.6	—	—	—	—	—	—	89.6
B.39180 ..	—	—	—	14.41	—	—	—	—	—	—	—	14.0	—	—	—	—	—	—	—	85.4	—	—	—	—
B.39240 ..	—	—	31.90	—	—	32.08	25.26	—	—	—	15.8	—	—	15.9	15.9	—	—	—	88.6	—	—	88.4	89.1	—
B.4092 ..	—	—	29.91	—	13.62	—	—	—	—	—	14.4	—	15.1	—	—	—	—	—	86.2	—	86.4	—	—	—
B.4094 ..	29.70	—	—	—	—	21.85	27.96	—	15.3	—	—	—	—	14.6	16.7	—	86.8	—	—	—	—	86.4	88.7	—
B.4096 ..	—	19.11	—	—	18.07	—	—	—	—	16.4	—	—	13.6	—	—	—	—	87.6	—	—	78.4	—	—	—
B.4098 ..	34.55	40.22	60.17	49.46	45.56	48.53	35.04	32.44	16.17	16.16	15.8	15.3	15.5	16.2	15.0	15.4	86.8	89.6	86.1	86.1	84.3	86.9	82.5	84.4
B.40100 ..	—	—	—	44.04	—	34.79	—	—	—	—	—	14.0	—	13.6	—	—	—	—	—	84.9	—	83.3	—	—
B.40102 ..	31.85	—	—	—	—	—	30.92	—	14.6	—	—	—	—	—	13.3	—	84.0	—	—	—	—	—	77.2	—
B.40105 ..	—	—	42.81	—	—	—	—	33.66	—	—	16.1	—	—	—	—	17.0	—	—	86.9	—	—	—	—	88.7
B.40116 ..	—	27.79	46.22	—	32.15	—	—	—	—	16.7	14.4	—	15.3	—	—	—	—	88.6	86.5	—	86.8	—	—	—

Variety	SUGAR TONS PER ACRE								NO. OF ROTTEN CANES PER PLOT							
	Locust Hall		Clifton Hall		Colleton		Nicholas		Locust Hall		Clifton Hall		Colleton		Nicholas	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3337 ..	—	4.83	—	—	—	—	—	—	—	6	—	—	—	—	—	—
B.3439 ..	5.19	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—
B.34104 ..	5.12	5.62	8.72	6.47	5.61	6.12	4.61	4.05	73	72	74	48	135	87	102	54
B.35187 ..	—	6.27	—	5.28	—	5.18	—	4.27	—	17	—	48	—	58	—	12
B.35245 ..	4.94	—	4.74	—	5.91	—	4.84	—	32	—	81	—	50	—	22	—
B.37161 ..	—	5.67	—	7.60	6.03	6.58	5.62	4.84	—	30	—	48	48	48	43	53
B.38155 ..	5.07	—	2.59	2.35	—	3.05	4.18	—	46	—	159	93	—	211	73	—
B.38212 ..	—	5.02	—	6.56	6.33	—	—	4.45	—	16	—	35	28	—	—	11
B.3915 ..	3.37	—	—	—	—	—	—	4.09	115	—	—	—	—	—	—	24
B.39180 ..	—	—	—	2.02	—	—	—	—	—	—	—	22	—	—	—	—
B.39240 ..	—	—	5.04	—	—	5.10	4.02	—	—	—	—	122	—	89	57	—
B.4092 ..	—	—	4.31	—	2.08	—	—	—	—	—	151	—	401	—	—	—
B.4094 ..	4.55	—	—	—	—	3.19	4.67	—	79	—	—	—	—	204	26	—
B.4096 ..	—	3.14	—	—	2.46	—	—	—	—	206	—	—	—	232	—	—
B.4098 ..	5.77	6.68	9.51	7.57	7.06	7.86	5.25	5.00	15	11	83	50	23	46	17	13
B.40100 ..	—	—	—	6.17	—	4.73	—	—	—	—	—	42	—	86	—	—
B.40102 ..	4.65	—	—	—	—	—	4.11	—	30	—	—	—	—	—	29	—
B.40105 ..	—	—	6.89	—	—	—	—	5.73	—	—	65	—	—	—	—	6
B.40116 ..	—	4.64	6.66	—	4.92	—	—	—	—	179	157	—	185	—	—	—

The following differences between mean yields may be considered significant:—

Locust Hall	Group I ..	± 0.87 tons sugar ± 5.37 tons cane per acre.
	Group II ..	± 0.62 tons sugar ± 3.58 tons cane per acre.
Clifton Hall	Group I ..	± 1.30 tons sugar ± 8.36 tons cane per acre.
	Group II ..	± 0.92 tons sugar ± 6.16 tons cane per acre.
Colleton	Group I ..	± 0.72 tons sugar ± 4.79 tons cane per acre.
	Group II ..	± 1.01 tons sugar ± 6.71 tons cane per acre.
Nicholas	Group I ..	± 0.72 tons sugar ± 4.59 tons cane per acre.
	Group II ..	± 0.66 tons sugar ± 3.56 tons cane per acre.

TABLE XV

Select Seedling Trials — 1st Ratoons

Estate:—Kendal. Harvested 27th April, 1944

Variety.	Tons cane per acre.		Z. H. R. Brix		No. of Rotten Canes Per Plot.	
	Group I.	Group II.	Group I.	Group II	Group I.	Group II
B.3439 ..	..	18.82	..	23.6	..	2
B.34104 ..	29.03	..	25.3	..	18	..
B.35187 ..	..	21.36	..	23.4	..	3
B.35245 ..	22.38	..	24.7	..	3	..
B.37161 ..	34.63	24.30	23.8	23.1	6	8
B.37193 ..	..	25.04	..	24.0	..	1
B.39177 ..	..	21.51	..	24.6	..	8

The following differences between mean yields may be considered significant:—

Group I ± 6.27 tons cane per acre
Group II Insignificant.

TABLE XVI

Select Seedling Trials — 2nd Ratoons

Estates and Dates of Harvesting:— { Guinea 17th March, 1944
Andrews 28th April, 1944

Variety.	Tons Cane per Acre.		Z. H. R. Brix.		No. of Rotten Canes per Plot.	
	Guinea.	Andrews	Guinea.	Andrews.	Guinea.	Andrews
B.H.10(12)	25.31	28.76	23.3	23.8	8	46
B.726 ..	..	18.20	..	23.3	..	120
B.3013 ..	23.57	..	23.4	..	3	..
B.34104 ..	46.79	35.78	23.7	23.3	8	77
B.35187 ..	22.61	..	22.8	..	2	..
B.35245 ..	..	32.52	..	22.2	..	42
B.38212 ..	30.05	..	23.3	..	2	..

The following differences between mean yields may be considered significant:—

Guinea ± 4.58 tons cane per acre.
Andrews ± 6.77 tons cane per acre.

TABLE XVII

Co-operative Variety Trials — 3rd Ratoons

Estates and dates of Harvesting:— { Horse Hill 31st March, 1944
{ Mount Wilton 28th March, 1944

Variety	Tons cane per Acre.		Z. H. R. Brix	
	Horse Hill	Mount Wilton	Horse Hill	Mount Wilton
B.3013 ..	23.33	24.51	24.1	23.9
B.35187 ..	29.22	32.85	22.5	23.1
B.35245 ..	30.99	29.71	23.4	23.0

The following differences between mean yields may be considered significant:—

Horse Hill ± 4.20 tons cane per acre.
Mount Wilton ± 4.42 tons cane per acre.

In the Select Seedling Trials, Plant Canes, Table XIV, the seedling B.4098 was outstanding, outyielding all other varieties in cane and sugar with the single exception of B.40105 at Nicholas, where it was outyielded by the latter variety, insignificantly on cane and significantly on sugar. It is of interest to note that at Clifton Hall in Block II, the seedling B.4098 gave a yield of 10.52 tons of sugar per acre. This is the first time in the history of the Station that a seedling has given a sugar yield of ten tons or over to the acre. The seedling B.40105 also gave a good performance at the two stations at which it was tried, but does not appear to be so well suited to these conditions as B.4098.

Of the other varieties tried, the standards B.34104, B.35187 and B.37161 maintained their reputations as good all round performers.

The performance of the seedling B.40116 was disappointing. It is obviously an early ripening cane, and as these experiments were cut rather late in the season, it had passed its prime and was rotting very heavily.

In the Select Seedling Trials, 1st Ratoons, Table XV, the varieties B.34104 and B.37161 significantly outyielded the variety B.35245 in Group I, while the varieties B.37161 and B.37193 were outstanding in Group II. The variety B.37193 would appear to be very useful as a late reaping cane in this category, particularly if the reaping season extended to the end of May or early June

In the Select Seedling Trials, 2nd Ratoons, Table XVI the variety B.34104 was outstanding at both Guinea and Andrews, outyielding the standard varieties by wide margins. The variety B.35245 also outyielded the standards at Andrews, but was not significantly better than B.H.10(12).

In the Co-operative Variety Trials at Horse Hill and Mount Wilton Table XVII, the two seedlings B.35187 and B.35245 were both significantly better than the standard variety B.3013. There was no significant difference between the yields of the two seedlings at these stations.

CATEGORY E

The results are given in Tables XVIII and XIX.

Table XVIII

Select Seedling Trials — Plant Canes

Estate:—Alleynedale — Harvested 14th and 15th March, 1944.

Variety	Tons Cane per Acre		Percent. Sucrose in Cane		Quotient of Purity		Tons Sugar per Acre		No. of Rotten Canes/Plot	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group
B.3439 ..	35.48	—	16.4	—	85.6	—	5.82	—	13	—
B.34104 ..	31.89	32.49	16.5	16.9	88.5	90.7	5.26	5.49	62	30
B.37161 ..	35.62	35.76	15.1	15.9	88.5	88.6	5.38	5.69	20	25
B.3915 ..	29.40	—	16.2	—	89.5	—	4.76	—	48	—
B.39180 ..	—	29.46	—	16.8	—	86.9	—	4.95	—	51
B.39240 ..	—	27.52	—	15.5	—	88.5	—	4.27	—	34
B.4092 ..	18.29	—	14.9	—	86.5	—	2.73	—	260	—
B.4094 ..	—	17.82	—	15.5	—	86.2	—	2.76	—	207
B.4096 ..	34.14	—	16.0	—	85.9	—	5.46	—	91	—
B.4098 ..	33.91	35.08	15.8	15.7	84.9	83.0	5.36	5.51	27	34
B.40102 ..	—	38.46	—	12.9	—	76.6	—	4.96	—	31
B.40105 ..	—	39.56	—	16.4	—	86.7	—	6.49	—	29
B.40116 ..	36.33	—	16.4	—	89.3	—	5.96	—	57	—

The following differences between mean yields may be considered significant:—

Group I ∓ 0.71 tons sugar, 4.55 tons cane per acre.
Group II ± 0.70 tons sugar, 4.44 tons cane per acre.

Table XIX

Select Seedling Trials — Second Ratoons

Estate:—Six Mens — Harvested 10th February, 1944

Variety.	Tons Cane per Acre.	Z. H. R. Brix	No. of Rotten Canes per Plot.
B.2935 ..	11.29	20.9	5
B.3439 ..	17.23	23.3	..
B.34104 ..	19.16	24.0	1
B.37161 ..	20.11	21.6	2
B.38155 ..	12.67	23.6	5
B.40118 ..	22.77	20.6	3

A difference of ± 4.42 tons cane per acre between mean yields may be considered significant.

Of the seedlings tested in the Select Seedling Trials, Plant Canes, B.40105 and B.40116 gave the highest yields of cane and sugar in the groups in which they were included. There was nothing to choose between the varieties B.3439, B.34104, B.37161, B.4096 and B.4098, all of which gave very satisfactory yields of sugar. The remaining varieties are definitely inferior to the ones mentioned above.

In the Select Seedling Trials, Second Ratoons, the varieties B.40118, B.37161 and B.34104 were outstanding. B.2935, after giving a very heavy yield as plant canes, has yielded progressively less as ratoons until it is now at the bottom of the list by a fair margin.

NOTES ON SOME OF THE MORE PROMISING OF THE NEWER SEEDLINGS

B.37193: This seedling is a thin purple cane of erect habit. It is very vigorous, a strong ratooner, and very sound, the number of rotten canes being very few even at the end of the season. It continues growing up to the end of the reaping season, and has an excellent juice when ripe. For these reasons, it should be useful as a late cane in Categories C and D.

B.4098: This seedling is a thick, greenish yellow cane of more or less erect habit. Deformed joints are frequently found, which cause the cane to be bent at definite angles. It is apparently very vigorous, and is best suited to Categories C and D, although it performs well in all Categories. Insufficient information is available for any definite statement to be made about its ratooning powers, but from observations made, it appears to be ratooning well. It has an excellent juice and trashes extremely well.

B.40105: This seedling is a medium width red cane, somewhat resembling B.34104 in appearance. It has an excellent juice, trashes well and appears to be best suited to Categories A, B and E. Like B.4098 no definite statement can be made as yet about its ratooning powers.

B.40116: This seedling is a very thin yellow cane with a purple tint around the nodes. It has given very high yields of cane and sugar in Categories A and B, but has an unfortunate sprawling habit which makes harvesting extremely difficult, especially as the cane is very brittle, and breaks on being pulled. It is doubtful if this cane will ever be cultivated on a commercial scale on account of the undesirable characters mentioned above.

III. DESPATCH OF SEEDLINGS TO THE PLANT QUARANTINE STATION

During the year under review the following seedlings were sent by the Station to the Plant Quarantine Station in Trinidad:—

(a) *For eventual distribution to all contributing colonies*

B.4110
B.4111
B.4145
B.4146
B.4148
B.4158

B.41103
B.41104
B.41203
B.41204
B.41211
B.41227
B.41228
B.41238

(b) *For distribution to Jamaica only*

B.4102
B.4126

(c) *For distribution to Jamaica, Antigua and Trinidad*

B.4022
B.4137
B.41226
B.41229
B.41261

Of this list, it is probable that the seedlings B.41211 and B.41227 are outstanding, although it is premature to forecast at this stage the performances of any of the seedlings listed.

IV. PERFORMANCES OF SEEDLINGS IN CONTRIBUTING COLONIES

BARBADOS

By the Sugar Cane Census Act, 1937, (1937-31), all plantations (i.e. units of more than ten acres arable land) are required during the month of September of any year to make a return giving the acreage of cane to be reaped during the subsequent crop and the acreage of each variety. Precise variety acreage figures are therefore available from plantations from the 1938 crop to the 1945 crop inclusive. Figures are also available for the 1936-1937 crops from voluntary returns which actually comprised almost ninety per cent of plantation canes in those years. The trend in the varietal situation is seen in the Table below:—

CROP YEAR

Variety.	1934—1936	1935—1937	1936—1938	1937—1939	1938—1940	1939—1941	1940—1942	1941—1943	1942—1944	1943—1945
B.H.10(12)	29.27	28.28	27.23	25.97	23.15	22.16	19.81	12.69	8.00	4.79
B.726 ..	29.82	27.64	26.74	21.98	19.48	17.33	15.64	9.58	4.79	2.96
B.2935 ..	29.19	38.24	39.30	42.10	43.01	45.66	42.45	20.95	4.73	1.92
Ba.11569 ..	8.18	3.10	..	..	..	..	..	..	..	..
B.891 ..	1.32	0.37	..	..	..	..	..	..	..	..
Mixed ..	2.22	1.28	2.91	2.09	3.90	2.97	2.90	3.45	3.79	1.25
B.3013 ..	..	0.64	3.82	6.98	8.26	8.58	8.42	5.84	2.90	1.38
B.417 ..	..	0.20	..	..	..	..	..	..	..	..
B.381 ..	..	0.25	..	..	..	..	..	..	..	..
B.3127 ..	..	..	..	0.88	2.20	3.30	3.33	..	..	..
B.3439 ..	..	..	..	..	..	..	3.60	8.35	9.49	4.93
B.37161 ..	..	..	..	..	..	..	1.48	26.77	48.69	62.70
B.35187 ..	..	..	..	..	..	.	2.37	10.19	11.28	10.22
B.35245 ..	..	..	..	..	..	..	..	1.85	2.06	1.58
B.34104 ..	..	..	..	..	..	..	..	0.33	4.19	7.41
B.4098 ..	..	..	..	..	..	..	..	..	..	0.33
*Other Varieties	..	..	..	..	..	..	..	..	..	0.53
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

* B.465, B.3127, B.3419, B.3540, B.37193, B.38155, B.39211, B.39240, B.4096, B.40102, B.40105, B.4145, B.41211, B.41221, B.41227.

It can be seen from the above Table that by 1938 B.2935 had completely replaced Ba.11569 and B.891. From 1937, B.3013 and B.3127 in red soils (high rainfall district) replaced in part the main crop standard variety B.H.10(12) and the early cane B.726.

The crop of 1942 saw the beginning of a rapid replacement of all these varieties, partly by B.3439 (black soils, low rainfall district) and B.35187 (red soils, high rainfall district) but above all and universally by B.37161. This seedling, in the course of four seasons, has come to occupy approximately 63% of the cane acreage, displacing almost entirely B.2935, B.726, B.3013, B.3127.

From the 1943 crop onwards the seedling B.34104 has been planted on an increasing scale and is replacing B.726, B.H.10(12) and B.35187 particularly in red soils and valley soils.

Planting recommendations for the 1944-46 crop include only the two seedlings B.37161 and B.34104, the latter being recommended in part for valley soils and areas of higher rainfall. The seedling B.37161 however, preponderates in the recommendations, its planting being advised in all categories including a hundred per cent. recommendation in the lower and low to intermediate rainfall categories. The planting of one field in the recent promising seedling B.4098 has been recommended to all plantations.

In addition to B.4098, the following seedlings have shown some promise for Barbados conditions:—

B.40105, B.4110, B.4145, B.41211 and B.41227.

TRINIDAD

The table on the proportionate distribution of sugar cane varieties reaped on estates for the years 1941-44 is given below:—

(based on complete returns)

Area (per cent.)

Variety	1941	1942	1943	1944
Barbados				
B.H.10(12)	56.16	58.16	48.47	31.45
B.726	2.92	1.49	1.32	1.02
B.3439	0.38	1.00	4.05	5.64
B.34104	0.02	0.78	8.15	17.58
B.3337	—	—	—	2.43
Others	0.47	0.50	0.83	0.80
Coimbatore				
Co.213	16.99	23.01	24.37	29.10
Co.290	0.95	0.18	0.07	0.02
Co.419	0.05	0.45	1.85	1.53
Others	0.02	0.03	0.74	1.44
Java				
P.O.J.2878	1.61	2.22	2.23	1.58
P.O.J.213	1.56	0.61	0.49	0.77
P.O.J.36	0.03	0.02	0.04	—
Others	0.01	—	—	—
Puerto Rico				
F.C.916	0.61	0.12	0.66	0.17
Others (P.R.803, etc.)	0.01	0.06	0.21	0.12
British Guiana				
Diamond 10 ..	0.11	0.10	0.11	—
Others	0.01	0.01	—	—
Elsewhere				
Uba	17.42	10.03	4.17	1.66
Others	—	0.01	—	—
Mixed Varieties				
B.H.10(12) etc. ..	0.65	1.20	2.24	4.68
Total ..	99.98	99.98	100.00	99.99

From the above table it is to be seen that B.34104 and B.3439 increased during these years largely at the expense of B.H.10(12), while on poor soils Co.213 increased at the expense of Uba, which as can be seen has almost disappeared. The occurrence of other varieties is almost negligible.

More recent information derived from correspondence and visits indicates that B.34104 is rapidly increasing at the expense of both B.H.10(12) and Co.213, while B.3337 and B.37172 are also being taken up rapidly under certain soil conditions.

In view of the fact that none of the B.38′ or B.39′ series is regarded as promising for Trinidad conditions and since more precise information is required with regard to the optimum allocation of recently successful seedlings over the Trinidad ecological areas, the trials planted this year have been designed to test the following seedlings in large scale trials in all ecological categories:—B.34104, B.3337, B.37172, B.37161 and B.H.10(12).

With regard to seedlings of the B.40′ series the Varieties Sub-Committee of the Sugar Cane Investigation Committee with the assistance of the Station is making selections for inclusion in trials next year.

With regard to variety experiments reaped in Trinidad in 1944 and the conclusions from the results, excerpts from the Acting Sugar Agronomist's summary are given here.

"Thirty-six varietal experiments have been reaped in 1944. Twenty-six "varieties were included in the trials, twenty-one from Barbados, four from "Coimbatore and one from Puerto Rico. Five of the varieties of the B.38′ "series (B.38192, B.38187, B.38260, B.38197 and B.38233) were reaped for the "first time in Trials.

"The experiments were laid down on different soil series, which in turn "can be considered under different groupings, according to their moisture re- "lationships, as listed later. It is therefore possible to consider the varieties "in relation to individual soil types or the larger moisture groups.

"The soil groups are as follows:—

"*Flat areas:*

Group I. Soils with no-dry season moisture shortage.

Group II. Soils with a distinct dry-season shortage.

(a) Loams to medium clays.

(b) Heavy to exceedingly heavy clays.

Group III. Soils with a very severe dry-season shortage.

"*Undulating areas:*

Group IV. Soils with moderate reserves of subsoil moisture during the dry season.

Group V. Soils with low reserves of subsoil moisture during the dry season.

(a) Loams to medium clays.

(b) Heavy and very heavy clays.

Group VI. Soils with very low reserves of subsoil moisture during the dry season.

"Generally speaking B.37161 and B.37172 have given better yields of cane "and sugar per acre than the other varieties in all trials in which they "have been included irrespective of soil type or grouping. B.37161 has tended "to do better on the heavy soils of Group II(b) than on the loams to medium "clays of Group II(a).

"B.34104 and B.3337 are next in order with B.34104 somewhat better than "B.3337 in the majority of the trials. The latter variety has shown up better "on soils of Group II than on soils of Group V.

"B.37193 has shown promise on soils of Group II(a).

"B.3439 has not shown up as in previous years even on the soil types for "which it seemed to be specially adapted.

"The five varieties of the B.38′ series that were tested for the first time "have not shown any results that warrant special mention.

"With respect to the other varieties, except for the fact that B.H.10(12) "is invariably low down on the list, there is nothing worthy of mention.

"The conclusion is arrived at that the experiments for 1944 have revealed "that in addition to B.34104 and B.3337, which varieties are already planted "on an extensive commercial scale, that B.37161, B.37172 and to a less extent "B.37193, are worthy of being tried on a small scale in commercial plantings "on all the soil groups of the Colony."

LEEWARD ISLANDS

Testing of seedlings in the Leeward Islands, more particularly in Antigua is very comprehensive and as a result plantations have been quick to replace existing standard canes with seedlings which tests have demonstrated to be better.

Recent varietal acreage figures for St. Kitts and Antigua are given below:—

Varieites Harvested in St. Kitts, 1930—44.

VARIETY.	Area Reaped (Per cent.) 1930.	1940.	1943.	1944.
B.H.10(12) ..	69.5	46.0	17.0	15.7
S.C.12/4 ..	17.4	..	..	..
B.2935 ..	..	47.8	54.7	47.6
B.3439	..	2.5	25.8	26.3
B.34104 ..	..	..	..	0.5
B.35187 ..	..	..	0.4	2.1
B.37161 ..	..	..	0.1	5.6
Others	13.1	6.2	2.0	2.2

Varieties Harvested in Antigua, 1934—44.

VARIETY.	Area Reaped (Per cent.) 1934	1939	1943	1944
B.H.10(12) ..	37.2	17.8	4.3	1.0
B.4507	26.0	1.9	0.1	..
Ba.11569 ..	14.0	38.3	24.8	10.1
P.O.J.2878 ..	9.3	6.1	4.5	2.7
B.2935 ..	..	24.8	19.2	10.5
B.3439	..	..	43.4	64.3
B.34104 ..	..	..	2.4	10.4
B.37161 ..	..	..	..	0.3
Others	13.5	11.3	1.3	0.7

Examination of the above tables show that in St. Kitts, the variety B.H.10 (12) has gradually been replaced by B.2935 and B.3439. The seedling B.37161 has now made its appearance and appears to have been taken up fairly rapidly. The planting recommendations made by the Sugar Agronomist to the Inspector General of Agriculture are as follows:—

ST. KITTS.

Lower Lands.

Low Rainfall: B.3439 for early reaping as plants and as ratoons. B.37161 for the main crop.

Intermediate and High Rainfall: B.37161 for the main crop. Some B.34104.

Middle Lands.

Intermediate Rainfall: B.37161 and B.34104.

High Rainfall: B.37161 for the main crop. Some B.34104.

Upper Lands.

Intermediate Rainfall: B.37161 for the main crop. Some 34104.

High Rainfall: Insufficient information is available on which to base recommendations. B.37161, B.35187 and B.34104 show promise.

In Antigua, the varieties BH..10(12) and Ba.11569 have been replaced to a large extent by B.3439, which now occupies by far the largest percentage of the acreage under cane. B.2935 was at one time grown on a fairly large scale, but is now being displaced by B.34104. B.37161 appears in the table for the first time in 1944 and is liable to expand rapidly as the planting recommendations of the Sugar Agronomist which are given below will show:—

ANTIGUA

Calcareous Clays with Marl Subsoils:	Wetherell clay	B.34104
	Fitches clay	B.37161
Clays of poor Natural Drainage:	Gunthorpe, Lindsey and Tomlinson clays (50%), B.37161 (50%)	B.34104
	Otto clay	B.34104
Sandy Loams of Good Natural Drainage:	Bendal and Blubber Valley sandy loams (50%) B.37161 (50%)	B.34104

With regard to other seedlings, it would appear that the seedling B.37172 has shown distinct promise under certain conditions in Antigua. But it is obvious that ratooning data will be necessary before definite pronouncements can be made. It appears that B.3439 is not ratooning consistently in Antigua and it will give way to B.34104 and B.37161.

The Leeward Islands have been advised by the Station to accelerate propagation and testing of B.4098, B.40105, B.4110, B.4145, B.41211 and B.41227.

WINDWARD ISLANDS

In Grenada and St. Lucia no accurate field trials are carried out to determine the relative merits of the various varieties. However, from the varietal acreage figures for Grenada for 1944, given below, it can be seen that progressive estates are, in the absence of varietal planting recommendations, attempting to keep pace with those islands where planting is based on the results of accurate field tests.

GRENADA.

Varieties Harvested in 1944.

VARIETY.	Area Reaped. (Per cent.)
B.H.10(12) ..	7.1
B.726	14.8
B.2935 ..	21.6
B.3013	7.1
B.34104 ..	14.3
B.3439	2.3
B.35187 ..	3.4
B.37161 ..	27.4
Others	2.0

In St. Lucia the position is somewhat different; the old variety B.H.10(12) occupies by far the greatest percentage of the land under sugar cane. However, the sugar Agronomist reports that the variety B.37161 and some B.34104 are now almost entirely planted by estates in place of B.H.10(12). Replacement is, however, very slow on account of the long ratooning practised.

Varieties Harvested on St. Lucia Estates, 1940—44.

VARIETY.	Area Reaped (Per cent.) 1940	1943.	1944.
B.H.10(12) ..	67.3	82.7	81.6
B.726	5.0	8.9	3.7
B.2935 ..	22.8	3.2	2.4
B.3013	..	4.2	5.1
B.37161 ..	..	..	1.3
Others	4.9	1.0	5.9

At the request of the Director of Agriculture of the Windward Islands and in view of insufficiency of staff to conduct field trials, it has been decided that, of the seedlings of any series sent to the Plant Quarantine Station, only those which show appreciable promise in Barbados in the early stages of testing, should be recommended for importation into the Windward Islands. Any other seedling in any series showing marked promise in later tests in contributing colonies, would also be recommended for importation into the Windward Islands.

With regard to those seedlings imported, selection for commercial planting in the several ecological areas would largely depend on observation in local field and factory tests plus results from variety trials conducted in comparable areas in other colonies.

In pursuance of this policy, the Station recently advised the Director of Agriculture of the Windward Islands to ensure that the following seedlings were already there:—

B.3337, B.3439, B.34104, B.37161 and B.37172.

At the same time he was advised not to import any seedlings of the B.38′ B.39′ and B.42′ series, but of the B.40′ and B.41′ series to import B.4098, B.41211 and B.41227.

JAMAICA

The taking of an annual variety acreage and yield census by the Department of Agriculture in Jamaica appears to have at least, temporarily, ceased. It may be that this will be done by the Research Committee of the Sugar Manufacturers' Association. In the meantime there are no accurate variety planting figures.

It appears, however, that B.34104 is undoubtedly the best general purpose variety in Jamaica at present and this despite its high susceptibility to mosaic. In the latter respect, it appears to possess tolerance and, even in the absence of rogueing or where rogueing seems unable to cope with the spread of the disease, little fear is felt that the disease will assume a serious form until such time as a seedling of at least equal field and factory performances and resistant to mosaic is produced.

The seedling B.37172 shows high resistance to mosaic. At the same time its field performances are reasonably good and it is an excellent factory cane. This seedling should be given further field tests and kept as a standby in case mosaic assumes a serious form.

Unfortunately B.35187 must have got mislabelled in Jamaica, for the seedling being tested as B.35187 was not so. The Jamaica authorities have been advised to get B.35187 from the Plant Quarantine Station.

The performances of B.37161 in tests are variable and it is clear that further trials will be required before making any conclusions. On the other hand B.37172 gives great promise, more especially when its high resistance to mosaic is taken into account.

Seedlings of more recent origin which should be given adequate tests in Jamaica are B.37193, B.38212, B.4098, B.40105, B.4110, B.4145, B.41211 and B.41227.

V. MOSAIC DISEASE INVESTIGATIONS IN BARBADOS

Work on mosaic disease started in June, 1943, was continued during the period under review. The fifty seedlings from each of 21 crosses which, as has already been reported, were inoculated with B.2935 and B.34104 infective material were cut back in October, 1943 and the young shoots of all plants which did not show the disease were re-inoculated. Inoculation was completed by mid-November, and the plants were kept under observation until the end of December. The table below gives the results obtained:—

CROSS.	Seedlings Inoculated.	Seedlings Infected.	Percentage Infected.
B.39233 x B.34104	46	6	13
B.38203 x „	50	3	6
B.38187 x „	50	3	6
B.35207 x B.39156	50	3	6
B.3392 x B.34104	50	2	4
Co.421 x „	50	Nil	Nil
B.3439 x B.41235	50	6	12
B.39157 x P.O.J.2878 ..	48	6	13
B.35206 x Co.290	50	3	6
B.3353 x B.40175 .. .	50	Nil	Nil
B.35206 x B.37256	50	11	22
B.38272 x B.34104	50	5	10
B.3439 x B.30(L)7	47	7	14
B.3371 x B.37193	50	5	10
B.35206 x B.34104	50	7	14
B.35207 x Pasoeroean	50	Nil	Nil
B.37161 x B.37256	49	3	6
B.3365 x B.41242	49	6	12
B.4092 x 37193	50	1	2
B.3353 x B.37256	50	5	10
B.3274 x B.34104	50	6	12

The outstanding feature of these results is that the percentage number of seedlings showing the disease is in all cases unexpectedly low. This tends to cast some doubt on the effectiveness of the technique being used, and as will be seen from the results of subsequent experiments, this was well justified.

VIRUS STRAINS

Diseased material of ten widely grown varieties was collected from all parts of the island and established in museum plots at Queen's Park, to serve as a source of material from which to attempt to separate out different strains of the virus, should more than one be present locally. At the same time, ten series of the following eight varieties were established in boxes at Codrington, two cuttings of each variety being planted per box:—Ba.11569, B.H.10(12), B.3439, B.34104, B.35187, B.37161, P.O.J.213 and P.O.J.234..

The boxes were brought to Queen's Park when the plants were twelve to fifteen inches tall. Each series was then inoculated with diseased material of a different variety, or of the same variety collected from a different locality. In each box only one plant was inoculated, and it is interesting to note that in no case did the control plant show symptoms of the disease.

It was hoped that the different varieties would show different symptoms and possibly different reactions to the various strains if these were present, thus making it possible to separate out the strains if such exist. The results of the experiment are given in the Table below:—

Variety.	Series I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
Ba. 11569 ...	I	x	x	x	x	x	x	x	x	x
B. H. 10(12)	x		x	x		x	x	x	x	x
B. 34104 ...	x	x		x			x		x	
B. 35187 ...										
B. 37161 ...										
P.O.J.213 ...	x	x	x	x		x	x	x		
P.O.J.234 ...	x	x	x			x	x	x	x	

At first glance there would appear to be a number of strains of the virus present, but failure to obtain infection of B.37161 with B.37161 infective material, and B.35187 with infective B.35187 material, again tended to cast very grave doubt on the effectiveness of the technique being used.

TESTING SELECTIONS OF THE B.41′ SERIES FOR RESISTANCE TO MOSAIC

Five stools of each of these seedlings were established at Queen's Park, and two stools of each were inoculated with infective material of each of the varieties B.2935, collected at the Mental Hospital, and B.34104 collected at Bennetts, St. Thomas. The remaining stool was left uninoculated as a control. The results of this experiment are given in the Table below:—

SEEDLING.	Parentage.			Reaction to Mosaic.
B.4022 ..	B.3439	x	B.H.10(12)	Susceptible
B.4102	B.3215	x	P.O.J.2878 (G)	Resistant.
B.4110	B.3365	x	„ (G)	„
B.4111	„	x	„ (G)	„
B.4126	„	x	B.2935 ..	Susceptible
B.4137	Co.213	x	P.O.J.2878 (G)	„
B.4145	B.3354	x	B.H.10(12) (G)	Resistant.
B.4146	„	x	„ (G)	„
B.4148	„	x	„ (G)	Susceptible
B.4158	B.3439	x	B.3461	Resistant.
B.4196	„	x	B.3307	„
B.41104	„	x	„	Susceptible
B.41203	„	x	B.(30)L7 (G) ..	„
B.41204	„	x	„ (G) ..	Resistant.
B.41211	„	x	B.37252 ..	„
B.41226	B.35207	x	P.O.J.2878 (G)	„
B.41227	„	x	„ (G)	„
B.41228	„	x	„ (G)	„
B.41229	„	x	„ (G)	Susceptible
B.41238	„	x	„ (G)	Resistant.
B.41255	B.3439	x	B.37256 ..	„
B.41261	„	x	„ ..	„

It should be remembered that in all these experiments only two and probably only one virus strain has been used. Further, other experiments have indicated that the technique being used has its short comings, so that it will not be surprising if some of the varieties which appear to be resistant at the moment, eventually take the disease under Jamaica conditions, where other strains of the virus may be present.

Of the resistant seedlings, ten are Glagah (G) derivatives, which are known to possess a high degree of resistance to mosaic disease, while the remaining five have the noble cane B.3439 as the female parent, and this variety is known to show a high degree of resistance to mosaic.

WORK DURING THE 1944 SEASON

From the experiments conducted during 1943, it was obvious that there was some undetermined factor or factors which adversely affect the transmission of mosaic disease by the method of artificial inoculation being used. After careful consideration, it was decided to discontinue all other experiments and to concentrate on trying to find out what factor or factors are involved, and so to work out a fool-proof technique.

Among the factors considered to be of any importance in the artificial transmission of the disease, turgidity of the plant at the time of, and after inoculation, was considered to be the most important. At the same time it was considered that an inert oil painted on the tissue of the healthy plant at the site of inoculation would help to secure a better contact, and so reduce the chances of oxidation of the virus taking place. As these two factors could easily be tested together, it was decided to try them first.

Two hundred 12″ pots were ordered and these were delivered after considerable delay. One-eye cuttings of the variety B.37161 were planted in these, as during the previous season it had been found impossible to transmit the disease to this variety by artificial inoculation.

When the plants were 12″—15″ tall, forty were placed in the laboratory at Codrington. They were well watered, the floors were flooded, and wet bags were hung around the room. The windows and doors were then closed and the plants allowed to remain for twenty-four hours. All plants were then inoculated with B.2935 mosaic material collected from the Mental Hospital, half being inoculated in the usual way, while the other half were treated with pure paraffin oil as described above. After inoculation, ten plants, five treated with paraffin and five inoculated in the ordinary way, were removed to the cisterns. Further similar lots were removed after periods of 24, 48 and 72 hours. The results of this experiment are given in the Table below:—

Plants inoculated and removed after	Treated with Oil			Ordinary Inoculation			Grand Totals		
	Diseased	Healthy	Total	Diseased	Healthy	Total	Diseased	Healthy	Total
0 hours	1	4*	5	3	2	5	4	6	10
24 „	5	0	5	4	1	5	9	1	10
48 „	4	1	5	3	2	5	7	3	10
72 „	3	2	5	2	3	5	5	5	10
Totals							25	15	40

From the above table it will be seen that 25 plants showed the symptoms or 62.5 per cent. of the total. This was distinctly encouraging, as previously it had not been possible to obtain any infections on the variety B.37161 and in addition it is known that this variety displays considerable resistance to mosaic under local conditions. In any case, the results of the experiment do show that turgidity of the plant at the time of and after inoculation is a factor controlling the transmission of mosaic disease virus by artificial methods.

Examining the results in more detail, 13 of the 20 plants treated with oil took the disease while 12 of the 20 untreated plants also showed the disease. This difference might easily have been due to chance, but two of the oil treated plants were killed by the inoculation, so that there appears to be at least an indication that the oil treatment may be better than the ordinary inoculation.

The other factor, the length of time during which the plants are kept under high humidity conditions after inoculation, shows some very extraordinary results, and as the number of plants involved is very small, this matter had better be left for discussion until more information has been obtained from further experiments with larger numbers.

As soon as the plants were ready, an experiment to test the effect of longer periods under high humidity conditions before inoculation was carried out. The plants were put into the laboratory as before and inoculated after periods of 24, 48, 72 and 96 hours, the inoculated plants being removed to the cisterns immediately after inoculation. As before five plants of each series were treated with paraffin oil. Unfortunately, diseased material taken from plants of the former experiment was used for inoculation and the virus may have been insufficiently developed, as the number of plants developing symptoms was very small, only 7 out of 40 showing the disease. This result may of course have been due to the treatment, but in any case no explanation can be offered until further experiments along the same lines confirm the results or otherwise.

Now that it has been shown that the turgidity of the plant at the time of and after inoculation affects the transmission of the disease by artificial methods, all future experiments will be carried out with the variety B.H.10(12) as this has been the standard cane used by all investigators of the sugar cane mosaic disease in the Western Hemisphere.

Fifty seedlings of each of 25 crosses have been established at Queen's Park for the study of the inheritance of resistance to mosaic disease. These will be allowed to remain until a satisfactory technique has been worked out and tested.

VI. STATEMENT OF EXPENDITURE FOR 1943-44

1.	Personal Emoluments	1,328	4	0
2.	Provident Fund	30	0	0
3.	Seedling Trails	699	13	10
4.	Stationery and Library	46	13	8
5.	Travelling (including passage of Asst. Botanist from Gold Coast to Barbados—£108. 9. 0.)	320	17	6
6.	Incidentals	28	6	9
7.	Capital	190	4	6
8.	Visit to Jamaica and British Guiana by Geneticist and Asst. Botanist	384	12	0
	Total	3,028	12	3

APPENDIX I

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING 1943-44—B.46′ SERIES

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery.

CROSS	GROUP	No. Germinated Nov. 1943-Jan. 1944	No. Potted Jan.—Feb. 1944	No. Planted in the Field Nursery May, 1944
	S. officinarum			
B.3439 x E.K.28	Noble	430	205	151
	S. officinarum x S. spontaneum			
B.3439 x Pasoeroean	Noble x Glagah	405	160	100
B.3439 x B.39281	„ x „	7	..	..
B.3354 x B.391	„ x „	163	135	100
B.3354 x B.603	„ x „	159	159	100
B.3353 x B.391	„ x „	211	177	100
B.3353 x B.603	„ x „	81	..	..
B.3439 x B.38155	„ x „	346	269	200
B.3439 x P.O.J.2714	„ x „	140	138	100
B.3354 x B.3337	„ x „	5,867	407	300
B.3353 x B.3337	„ x „	7,448	1,090	873
B.34102 x B.3337	„ x „	4,181	500	300
B.35247 x B.391	„ x Celebes	566	340	310
B.37162 x B.3337	„ x Glagah x Celebes	753	200	150
B.35197 x P.O.J.2878	„ x „ x „	3,624	800	496
B.35247 x B.35187	„ x „ x „	1,428	522	500
B.35247 x B.3337	„ x „ x „	10,196	1,164	990
B.35247 x P.O.J.2878	„ x „ x „	424	300	200
B.3439 x B.38279	„ x Glagah x Local	62	62	60
B.35197 x B.38281	„ x „ x Celebes x Local	1,634	300	200
B.35197 x B.38285	„ x „ x Celebes x Local	652	200	200
		38,347	6,923	5,279
	S. officinarum x S. barberi			
B.35206 x B.2935	Noble x Chunnee	955	504	292
	S. officinarum x S. robustum			
B.3439 x C.P.36—134	2nd Nobilisation	7,173	300	200
B.3439 x C.P.36—145	„ „	5,619	309	200
B.3439 x C.P.36—144	„ „	1,384	427	200
B.3439 x C.P.32—156	„ „	70	68	50
		14,246	1,104	650

APPENDIX I—*(Continued)*

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING 1943-44—B.46′ SERIES

Details of Crosses made, their Germinations, Numbers Plotted and Numbers Planted in the Field Nursery.

CROSS	GROUP	No. Germinated Nov. 1943-Jan. 1944	No. Potted Jan.—Feb. 1944	No. Pl: ed in t Field N sery M 1944
	S. officinarum			
	S. spontaneum x S. barberi			
B.3439 x B.37175 ..	Glagah nobilisation x Chunnee nobilisation ..	8,116	1,300	99
B.3365 x B.37175 ..	„ „ ..	1,796	600	39
B.35207 x P.O.J.2878 ..	„ „ ..	644	430	40
B.39207 x P.O.J.2878 ..	„ „ ..	397	209	13
B.37161 x B.35187 ..	„ „ ..	107	85	8
B.3365 x P.O.J.2878 ..	„ „ ..	1,655	624	.
B.37161 x P.O.J.2878 ..	„ „ ..	2,894	2,523	2,34
B.35206 x P.O.J.2878 ..	„ „ ..	2,016	475	30
B.39240 x P.O.J.2878 ..	„ „ ..	22	..	.
B.37161 x B 40133 ..	„ „ ..	184	182	15
B.37161 x B.37176 ..	„ „ ..	14	..	.
B.37161 x B.39250 ..	Local nobilisation x Chunnee nobilisation ..	131	119	10
B.3365 x B.39269 ..	„ „ ..	130	126	10
B.3365 x B.39274 ..	Celebes nobilisation x Chunnee nobilisation ..	3,073	407	20
B.37161 x B.40255 ..	Glagah nobilisation x local nobilisation x Chunnee nobilisation	341	244	20
B.37161 x B.40256 ..	„ „ ..	2,450	222	20
		23,970	7,546	5,61
	S. officinarum x S. spontaneum x S. sinense			
B.3354 x B.37261 ..	Glagah nobilisation x sinense nobilisation	89	65	5
B.3439 x B.40270 ..	„ „ ..	180	172	15
B.3354 x B.37224 ..	„ „ ..	1,379	162	15
B.35247 x B.35269 ..	Glagah nobilisation x Celebes x sinense nobilisation	47	14	4
		1,695	443	39
	S. officinarum x S. spontaneum x S. robustum			
B.3439 x C.P.36-156 ..	Noble x robustum x Glagah nobilisation	263	211	15
Synthetic Kassoer x C.P.36-127 ..	Glagah nobilisation x robustum nobilisation	30	24	2
Co.421 x C.P.36-133 ..	„ „ ..	2,174	308	20
		2,467	543	37

APPENDIX I—*(Continued)*

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING 1943-44—B.46′ SERIES

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery.

CROSS	GROUP	No. Germinated Nov. 1943-Jan. 1944	No. Potted Jan.—Feb. 1944	No. Planted in the Field Nursery May, 1944
	S. officinarum x S. barberi x S. robustum			
B.3365 x C.P.36-137 ..	Chunnee nobilisation x robustum nobilisation ..	5,294	334	200
B.37161 x C.P.31-517 ..	„ „ x „ ..	126	111	90
B.3365 x 28N.G.251 ..	„ „ x „ ..	2,129	424	300
		7,549	869	590
	S. officinarum x Sorghum sp.			
B.3439 x Imphee ..	Noble x Sorghum			
	S. officinarum x S. barberi x Sorghum Sp.			
B.3365 x Early Bascom ..	Chunnee nobilisation x Sorghum	63	57	50
	S. officinarum x S. spontaneum x Sorghum Sp.	..		
B.3354 x Crop ..	Glagah nobilisation x Sorghum	31	30	20
	S. officinarum x S. barberi x Erianthus arundinaceus			
B.37161 x C.P.36-116 ..	Chunnee nobilisation x Erianthus	46	46	40
	S. officinarum x S. barberi x S. spontaneum x sinense			
B.3365 x B.40267 ..	Chunnee nobilisation x Glagah nobilisation x sinense nobilisation	1,594	349	250
B.37161 x B.37261 ..	„ „ ..	14	..	..
		1,608	349	250
	Co.281 and its derivatives			
B.3365 x B.34104 ..	Chunnee nobilisation x x Co.281	1,796	539	400
B.37194 x B.34104 ..	„ „ x „ ..	2,044	1,073	1,000
B.37161 x B.34104 ..	„ „ x „ ..	184	164	100
B.35197 x Co.281 ..	Celebes nobilisation x „ ..	909	290	280
B.35197 x B.34104 ..	„ „ x „ ..	8,721	1,168	1,029
B.35247 x B.34104 ..	„ „ x „ ..	1,017	1,011	800
B.35261 x B.34104 ..	Glagah nobilisation x „ ..	1,190	..	..
B.40164 x B.34104 ..	„ „ x „ ..	3,996	300	150
B.34117 x P.O.J.2878 ..	„ „ x „ ..	2,576	509	300
B.39253 x B.34104 ..	„ „ x „ ..	800	215	150
B.37266 x B.34104 ..	„ „ x „ ..	192	146	100
B.38212 x B.34104 ..	„ „ x „ ..	757	502	400
B.41277 x B.34104 ..	„ „ x „ ..	18	..	..
B.34102 x B.34104 ..	„ „ x „ ..	796	460	420
B.39192 x B.34104 ..	„ „ x „ ..	823	219	149
B.38178 x B.34104 ..	„ „ x „ ..	127	106	80
Co.281 x P.O.J.2878 ..	„ „ x „ ..	1,070	361	350
B.37226 x B.34104 ..	Sinense nobilisation x „ ..	163	133	100
C.H.64/21 x B.34104 ..	„ „ x „ ..	157	144	100
C.P.36-158 x B.34104 ..	Glagah nobilisation x Robustum nobilisation x Co.281	1,943	308	200
		29,279	7,648	6,108

APPENDIX I—*(Concluded)*

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING 1943-44—B.46′ SERIES

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery.

CROSS	GROUP	No. Germinated Nov. 1943-Jan. 1944	No. Potted Jan.—Feb. 1944	No. Planted in the Field Nursery May, 1944
	Co.290 and its derivatives			
B.35218 x C.P.36-154 ..	Co. 290 x Noble	107	93	90
B.35218 x E. Bascom ..	„ x Sorghum ..	5	..	..
B.3354 x B.40118 ..	„ x Glagah nobilisation ..	696	336	200
B.3354 x B.40102 ..	„ x „ „ ..	114	..	..
B.3353 x B,40118 ..	„ x „ „ ..	499	320	200
B.3353 x B.39178 ..	„ x „ „ ..	8,979	319	200
B.40117 x B.3337 ..	„ x „ „ ..	209	198	150
B.4094 x B.3337 ..	„ x „ „ ..	3,036	343	300
B.4096 x B.35187 ..	„ x „ „ ..	144	139	100
B.34102 x Co.290 ..	„ x „ „ ..	160	137	120
B.3353 x Co.290 ..	„ x „ „ ..	474	221	200
B.3354 x Co.290 ..	„ x „ „ ..	204	189	165
B.3353 x B.40115 ..	„ x „ „ ..	210	188	..
B.40116 x P.O.J.2878 ..	„ x „ „ ..	..	..	..
B.35218 x B.39229 ..	„ x „ „ ..	181	157	139
B.4097 x B.35187 ..	„ x „ „ ..	24	..	..
B.40105 x P.O.J.2878 ..	„ x „ „ ..	159	152	149
B.35218 x P.O.J.2878 ..	„ x „ „ ..	1,071	500	450
B.35218 x B.35187 ..	„ x „ „ ..	167	128	100
B.35218 x B.3337 ..	„ x „ „ ..	4,216	1,052	1,012
B.3353 x B.39175 ..	„ x „ „ ..	347	234	200
B.4091 x P.O.J.2878 ..	„ x „ „ ..	890	210	151
B.3353 x B.40112 ..	„ x „ „ ..	37	..	..
B.39237 x Co.290 ..	„ x Chunnee nobilisation ..	1	..	..
B.40105 x B.37193 ..	„ x „ „ ..	1,020	349	300
B.35218 x B.35275 ..	„ x Sinense nobilisation ..	2	..	..
B.35218 x B.38192 ..	„ x Co.281 x Glagah nobilisation ..	344	178	150
B.35218 x B.37175 ..	„ x Glagah nobilisation x Chunnee nobilisation	1,016	404	400
B.35218 x B.4098 ..	Co.290 x Co.290	717	479	450
		25,029	6,326	5,226
	S. officinarum x S. barberi x N.C.100			
B.35207 x N.C.100 ..	Chunnee nobilisation x N.C.100	105	95	90
	GRAND TOTALS ..	145,820	32,688	25,120

APPENDIX II.

SUGAR CANE FIRST YEAR SEEDLINGS. B.45′ SERIES

List of Crosses and the Number of Seedlings Planted in the Field Nursery (April/May, 1943) and the First Year Seedling Trial (October/November, 1943).

CROSS	GROUP	No. Planted in Field Nursery	No. Planted in 1st Year Seedling Trial.
	S. officinarum x Sorghum vulgare		
B.3439 x Early Bascom ..	Noble x Sorghum	30	14
B.3439 x Crop ..	„ x „	35	13
		65	27
	S. officinarum x S. barberi x S. spontaneum		
B.35207 x B.39156 ..	Chunnee nobilisation x Celebes nobilisation ..	200	150
B.35206 x B.37256 ..	Chunnee nobilisation x Local nobilisation	408	300
B.37161 x B.37254 ..	„ „ x „ ..	199	150
B.37161 x B.37256 ..	„ „ x „ ..	400	300
B.3365 x B.35187 ..	„ „ x Glagah nobilisation	562	410
B.3365 x B.39220 ..	„ „ x „ ..	149	100
B.3365 x B.41276 ..	„ „ x „ ..	140	100
B.3365 x B.41242 ..	„ „ x „ ..	200	150
B.37161 x B.35187 ..	„ „ x „ ..	28	25
B.35207 x Pasoeroean ..	„ „ x „ ..	202	157
B.3353 x B.40175 ..	„ „ x „ ..	392	320
B.3371 x B.37193 ..	„ „ x „ ..	553	445
B.3439 x B.41235 ..	Noble x Chunnee x Glagah nobilisation	301	200
		3,734	2,807
	S. officinarum x S. barberi x S. robustum		
B.35206 x 32 M.Q.629 ..	Chunnee nobilisation x S. robustum nobilisation ..	250	200
B.3365 x 32 M.Q.657 ..	„ „ x „ ..	141	121
		391	321
	S. officinarum x S. spontaneum		
B.3439 x B.39252 ..	Local 2nd nobilisation ..	60	50
B.3439 x B.(30)L.7 ..	Glagah 4th nobilisation ..	1,098	728
		1,158	778
	S. officinarum x S. spontaneum x S. spontaneum		
B.39157 x P.O.J.2878 ..	Glagah nobilisation x Celebes nobilisation ..	301	200
B.3353 x B.37256 ..	„ „ x Local nobilisation	601	360
		902	560

APPENDIX II—*(Continued)*

SUGAR CANE FIRST YEAR SEEDLINGS. B.45' SERIES

List of Crosses and the Number of Seedlings Planted in the Field Nursery (April/May, 1943) and the First Year Seedling Trial (October/November, 1943).

CROSS	GROUP	No. Planted in Field Nursery	No. Planted in 1st Year Seedling Trial
	S. officinarum x S. spontaneum x S. sinense		
B.3439 x B.37261 ..	Noble x Glagah x Sinense nobilisation	200	125
B.3353 x B.35275 ..	Glagah nobilisation x Sinense nobilisation	70	50
B.39254 x P.O.J.2878 ..	„ „ „ ..	100	80
		370	255
	S. officinarum x S. spontaneum x S. robustum		
B.3353 x 32 M.Q.629 ..	Glagah nobilisation x S. robustion nobilisation ..	37	28
B.3353 x 28 N.G.251 ..	„ „ „ ..	13	7
		50	35
	S. officinarum x S. spontaneum x S. sinense x S. barberi		
B.3365 x B.37261 ..	Glagah nobilisation x Sinense nobilisation x Chunnee nobilisation	118	87
B.3365 x B.35276 ..	„ „ „ ..	158	125
B.3365 x B.37224 ..	„ „ „ ..	301	232
		577	444
	S. officinarum x S. spontaneum x barberi x Spontaneum		
B.3365 x B.39257 ..	Glagah nobilisation x Chunnee nobilisation x Local nobilisation	50	39
	S. officinarum x S. robustum		
B.3439 x 32 M.Q.579 ..	S. robustum 2nd nobilisation	285	200
B.3439 x 32 M.Q.135 ..	„ „ „ ..	68	50
		353	250

APPENDIX II—*(Concluded)*

SUGAR CANE FIRST YEAR SEEDLINGS, B.45′ SERIES.

List of Crosses and the numbers of Seedlings Planted in the Field Nursery (April/May, 1943), and the First Year Seedling Trial (October/November, 1945).

CROSS	GROUP	No. Planted in Field Nursery	No. Planted in 1st Year Seedling Trial
B.37266 x Co.290 ..	*Co.290 and its derivatives*		
	Co.290 x Glagah nobilisation	16	15
B.3353 x Co.290 ..	„ x „ „ ..	590	482
B.3371 x Co.290 ..	„ x „ „ ..	50	45
B.3439 x Co.419 ..	Noble x „ „ x Co.290	159	132
B.35206 x Co.290 ..	Co.290 x Chunnee nobilisation	200	179
B.4092 x B.37193 ..	„ x „ „ ..	700	485
B.39254 x Co.290 ..	„ x Sinense „ ..	250	200
		1,965	1,538
Co.281 x B.H.10(12) ..	*Co.281 and its derivatives*		
	Co.281 x Noble	90	65
B.39177 x B.34104 ..	Co.281 x Co.290	84	63
B.38203 x B.34104 ..	Co.281 x Glagah x Chunnee	1,000	680
B.38233 x B.34104 ..	„ x „ x „ ..	391	357
B.38260 x B.34104 ..	„ x „ x „ ..	390	349
B.35206 x B.34104 ..	„ x Chunnee nobilisation	498	449
B.39254 x B.34104 ..	„ x Sinense „ ..	60	50
B.3353 x B.34104 ..	„ x Glagah „ ..	1,008	872
B.3354 x B.34104 ..	Co.281 x Glagah nobilisation	998	910
B.3371 x „ ..	„ x „ „ ..	825	495
B.3392 x „ ..	„ x „ „ ..	494	305
B.39211 x „ ..	„ x „ „ ..	137	100
B.39223 x „ ..	„ x „ „ ..	442	200
B.38187 x „ ..	„ x „ „ ..	200	150
B.3274 x „ ..	„ x „ „ ..	1,010	730
B.38272 x „ ..	„ x „ „ ..	410	242
Co.421 x „ ..	„ x „ „ ..	600	513
		8,637	6,530
	GRAND TOTALS ..	18,252	13,584